

REMARKS

Claims 1, 2 and 4-7 are presently pending in the application.

Claim 1 has been amended to clarify that cavities of the mold have connecting passages such that the mold can be filled from cavity to cavity. This Amendment is supported, for example, at page 4, lines 28-30 and in all three Figures of the drawings. Accordingly, no new matter has been added, and entry of the Amendment is respectfully requested.

Applicants are pleased to acknowledge the Examiner's withdrawal of the previous objections and rejections.

In this action, the Examiner has rejected claims 1-2 and 5-7 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,316,712 of Ono et al. ("Ono") in view of U.S. Patent 5,496,488 of Kacher et al. ("Kacher"). Claim 4 has also been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ono in view of Kacher and further in view of Rosato's Injection Molding Handbook (2nd Ed.) ("Rosato").

The Examiner contends that Ono shows a method of producing a plurality of moldings in one mold, comprising providing a mold which has a plurality of cavities having a shape corresponding to the moldings (Fig. 1A), the cavities being arranged in the mold in such a way that, except for cavities in an end or peripheral position of the mold, each of the cavities is linked to at least two closely adjacent cavities (Figs. 4 and 6). The Examiner further contends that Ono teaches the steps of providing a fluid casting compound, introducing the fluid casting compound into the mold at at least one point so that the cavities become essentially completely filled, solidifying the casting compound to produce moldings, and removing the moldings from the mold.

The Examiner acknowledges that Ono does not show a casting compound containing a surfactant, but contends that Kacher shows that it is known to form moldings from a fluid compound containing a surfactant. The Examiner further acknowledges that Ono and Kacher do not teach the specific degree of hardness of the material or show the method of measuring the hardness (although the method of measuring the hardness is not part of the claimed invention).

However, the Examiner argues that the burden is upon Applicants to prove that the prior art products do not necessarily or inherently possess the hardness claimed.

With respect to claims 5-7, the Examiner contends that Ono shows casting compound introduced at a single point which is located centrally in the mold (Fig. 2 with the mold of Figs. 4 or 6), use of an injection molding method, and moldings having a spherical shape. With respect to claim 4, the Examiner contends that Rosato shows an injection molding operation wherein each of the cavities, except for cavities in a peripheral position of the mold, is arranged closely adjacent to four to six other of the cavities.

The Examiner concludes that it would have been obvious to one skilled in the art at the time of the invention to use Kacher's surfactant in Ono's molding material in order to give the molded products a cleansing property as well as a beautifying property, and to use Rosato's mold configuration in Ono's molding operation in order to obtain more articles per injection shot. The Examiner argues that the references are combinable because they are concerned with a similar technical field, namely molding products that are biologically compatible and used for cleaning or grooming purposes, or injection molding operations. These rejections are respectfully but strenuously traversed for the reasons set forth in detail below.

As pointed out in paragraph [0006] at page 1 of the specification, a problem of standard injection molding processes is that the moldings are joined by webs of filled passages, such that the moldings must be separated from these webs by an appropriate finishing process, which requires at least one additional work step and leaves behind waste material in the form of the connecting webs. Moreover, the number of moldings which can be produced in one mold is limited.

In contrast, as pointed out in paragraph [0024] at the bottom of page 4 of the specification, a basic principle of the present invention is that the connecting passages are disposed so that the mold can be filled from cavity to cavity. As a result, the cavities can be closely arranged adjacent to one another and linked to one another by relatively short and narrow connecting passages. This allows the production of a large number of moldings in a short time. Further, there is usually no need for additional processing, because the connecting webs are so short and thin that the moldings break up into individual pieces as they are being emptied from

the mold. The moldings are left with only minimal linkage points, which are usually tolerable, and there is almost no waste material. (See paragraph [0013] at the bottom of page 2 of the specification).

This essential feature of the presently claimed invention is neither taught nor suggested by any of the prior art references relied upon by the Examiner. Thus, in the molds of Figs. 4 and 6 of Ono, the mold cavities are connected only by the passages which radiate from the centrally located injection point. Hence, each of the cavities is filled from this injection point, and none of the cavities is filled by molding material flowing from cavity to cavity. As a result, the resulting moldings are left with a cross-shaped web from the feed passages, which must be removed and results in waste material.

This deficiency is not rectified by either Kacher or Rosato. Kacher simply teaches that in order to produce a soap bar, the composition is poured into molds, cooled and then removed from the molds (col. 15, lines 41-42). This is the normal technique for forming soap bars in which the molding fluid is simply poured into each individual mold, the individual molds not being connected to each other.

While Rosato shows several examples of multi-cavity molds in Figs. 4-27, the mold cavities are connected in the same way as Ono and the prior art referred to at paragraph [0004] of the present specification. That is, each mold cavity is connected by web passages to a central injection point. There are no connecting passages among the cavities, such that the mold can be filled from cavity to cavity. As a result, the molding material which fills the passages creates a web of waste material, which must be removed upon emptying the moldings from the mold.

In sum, none of the prior art references relied upon by the Examiner teaches or appreciates the fundamental characteristic of the present invention that individual mold cavities are not simply used to mold a molding fluid, but that the cavities can themselves be used as conduits to pass the molding fluid through to other cavities in order to produce a large number of moldings at the same time. As discussed in paragraph [0027] of the present specification, the lattice-type structure illustrated in Fig. 2 has been used to fill one hundred twenty spherical cavities. Using the layout of Fig. 3 with molds of the same size, even more cavities can be accommodated, with initial tests having been conducted with a mold incorporating

approximately eight hundred cavities. As noted, it would be conceivable to work with dimensions incorporating 2,000 to 2,500 cavities or even more.

In contrast, using the webs of passages of Ono or Rosato, filling each cavity through passages from a single injection point, the filling of such a large number of mold cavities would be virtually inconceivable. Moreover, the size of the mold required and the waste of material from the web of passages would be highly uneconomical.

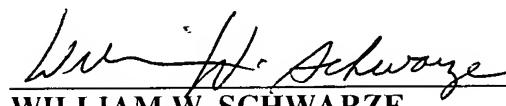
Accordingly, even if the Examiner's combinations of references were proper, the combinations still do not teach or suggest an essential feature of the presently claimed invention. Moreover, none of the references recognizes or appreciates the economic advantages of the present invention in filling the mold from cavity to cavity. Therefore, the rejections are improper and reconsideration and withdrawal are respectfully requested.

In view of the above amendments and remarks, it is submitted that the application is now in full condition for allowance, and reconsideration and an early Notice of Allowance are respectfully solicited.

Respectfully submitted,

RALF WIEDEMANN

February 9, 2004 By: _____
(Date)


WILLIAM W. SCHWARZE
Registration No. 25,918
AKIN GUMP STRAUSS HAUER & FELD LLP
One Commerce Square, 2005 Market Street, Suite 2200
Philadelphia, PA 19103-7013
Telephone: 215-965-1200
Direct Dial: 215-965-1270
Facsimile: 215-965-1210
E-Mail: wschwarze@akingump.com

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Enclosure – Petition for Extension of Time